



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,239	06/09/2006	Nobuaki Matsuoka	292337US26PCT	1964
22850	7590	01/19/2011	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				FORD, NATHAN K
ART UNIT		PAPER NUMBER		
1712				
NOTIFICATION DATE			DELIVERY MODE	
01/19/2011			ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/582,239 Examiner NATHAN K. FORD	MATSUOKA ET AL. <b>Art Unit</b> 1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 28 October 2010.  
 2a) This action is **FINAL**.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-7,9-12 and 14-26 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-7,9-12 and 14-26 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 09 June 2006 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____ .                        |

**DETAILED ACTION**

*Applicant's Response*

Acknowledged is the applicant's request for reconsideration filed October 28, 2010. Claims 1, 4, and 20 are amended; claims 24-26 are new. It should also be noted that the examiner's interpretation of the *means plus function* language present in claim 1 has been revised.

The applicant contends:

- (1) There is no reason to modify Takekuma to provide utilities in the manner claimed.
- (2) Olbrich secures the utility port to the processing blocks via bolts. This form of attachment is not "freely attachable/detachable" as required by the applicant's claims.
- (3) Kirkpatrick and Olbrich are incompatible, as the former teaches the connection of services through conduits, whereas the latter integrates all services through a coupling box.
- (4) The prior art does not disclose the subject matter recited by newly added claims 24-26.

In response:

**(1)** The very nature of a multiple-reference 103 rejection presupposes that the primary reference does not disclose a certain feature claimed by the applicant, and that a compatible secondary teaching is needed address the deficiency. Thus, the 103 rejections below are not invalidated by the mere fact that Takekuma, the primary reference, does not teach the claimed configuration of utility units. It is the Office's position that the secondary references, Kirkpatrick and Olbrich, are both structurally appropriate for combination with Takekuma and provide a compelling motivation for modifying the structure of Takekuma's system. In this way, the conditions of a proper 103 rejection are satisfied.

**(2)** Olbrich teaches a technique for automatically interchanging process blocks from a utility port (2, 45-65). It is the Office's position that a means of attachment and detachment which does not even require manual intervention properly constitutes "freely attachable/detachable." It is "free" in the sense that the attachment or detachment of the process blocks from the utility port is not obstructed by any circumstance requiring manual attention to resolve.

**(3)** The above distinction between these prior art references is external to the scope of the combination and thus irrelevant. Kirkpatrick is relied upon to demonstrate that it is known in the art to dispose utility units within the base of a linear transfer block to which are attached a plurality of processing modules. As Kirkpatrick does not address the manner of affixment between the utility ports and their respective processing modules, Olbrich is cited to remedy the

Art Unit: 1712

deficiency and does so by providing an explicit description of a technique for freely attaching/detaching processing modules to a linear utility port.

(4) The examiner concurs with the applicant's assessment. However, upon further search, a rejection has been submitted below to address these claims.

#### *Claim Objections*

Claim 4 is objected to as being a duplicate of claim 1. Cancellation or amendment is required.

#### *Claim Interpretation*

Upon further consideration, the applicant's recitation of a "first transfer means for performing delivery," "second transfer means for...transferring," and a "third transfer means for transferring" will not be accorded a 112 sixth interpretation. In order to receive 112 sixth consideration, the phrase *means for* must be immediately followed by the statement of function, and no adjective describing the statement of function shall precede the *means for* term. The applicant's recitation of the "second transfer means" fails on both the first and second grounds; the recitation of the "first" and "third transfer means" fails on the second grounds.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-7, 11, 14-15, 17-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma, US 6,377,329, in view of Kirkpatrick et al., US 6,238,161, and Olbrich et al., US 5,083,364.

Claims 1-2, 4-5, 15, 17-18, 20, 22: Takekuma discloses a substrate processing apparatus comprising (Fig. 5):

- A carrier block (10) including:
  - A carrier placement portion (21);
  - A substrate carrier (C);
  - A first transfer means (22);

Art Unit: 1712

- A transfer block (71), comprising a second transfer means (72), provided adjacent to the carrier block for transferring the substrate along a transfer path (7, 34-43);
- A first delivery stage (62) capable of delivering a substrate between the first and second transfer means (7, 55-67; Fig. 9);
- A plurality of detachable process blocks (100, 300), each comprising (5, 62-67):
  - A heating unit (23) in column R1 (9, 18-40; Fig. 6);
  - A third transferring means (30) (Fig. 5);
  - A second delivery stage (EXT) (Fig. 6);
  - Four liquid processing units (3) (Fig. 3);
- A light exposure machine (200) (8, 40-45);
- An interface portion (51) located between the transfer path and the light exposure machine;
- Wherein the transfer path extends from the interface portion to the carrier block;
  - Wherein the process blocks are arranged on only one side of the transfer path.

Concerning the recitation that each block comprises both resist coating and developing units: Formally, Takekuma disposes the coating units (3) in a first module and the developing units (5) in a second module. However, both units execute liquid processing and “have substantially the same structure” (7, 18-20). It is thus the Office’s position that the coating units are fully capable of performing developing processing and vice-versa. Accordingly, at least one of the units in the developing module can be configured to execute resist processing and one of the units in the resist module can be configured to execute developing. In this way, each module includes a coating and developing unit. Further, a recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations (*Ex parte Masham*, 2 USPQ2d 1647). It is also the Office’s position that each process block must inherently include a chemical “unit” to store and provide the liquid to the coating and developing modules.

Also, regarding the sequencing of processing operations: Takekuma discloses a controller (90) which renders the apparatus capable of processing a substrate according to the applicant’s claimed sequence.

Takekuma does not dispose a utility unit within the transfer block. However, such configurations are known in the art. Kirkpatrick, for instance, describes a substrate processing system having a plurality of process modules (11) arranged alongside linear transfer chamber (13) (Fig. 3). Further, utility connection ports (33), which correspond with connection ports (23) formed at the base of each process module, are disposed within the transfer block to facilitate

Art Unit: 1712

the efficient provision of supplies to the modules from a site external to the transfer block (4, 21-28; Fig. 1). In light of this teaching, it would have been obvious to the skilled artisan to dispose utility units within Takekuma's transfer block to achieve the predictable result of providing utilities to the process blocks.

Lastly, Takekuma and Kirkpatrick are silent regarding the precise manner of affixment between the utility ports of transfer block and the process modules. Olbrich is thus cited in supplementation for the disclosure of an exemplary means of connecting process modules to utility ports. As delineated by Figure 1, Olbrich teaches a linear utility block (3) arranged alongside a plurality of detachable process chambers (1) (4, 14-25). To facilitate module detachment and engagement, the utility block is outfitted with several connection ends (10). The process module is first pushed up to the connection site, and then mating hooks automatically extend from the connection end to engage and securely couple the module to the utility block (4, 47ff). The process is also reversible. This technique allows for the process modules to be connected in an arbitrary manner depending on the instant purpose, and reduces the need for manual labor (1, 46-57). Accordingly, it would have been obvious to the skilled artisan to outfit Takekuma's transfer block with Olbrich's connection devices to promote the facile attachment and removal of the process modules.

Claim 6: A recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations. The apparatus is capable of applying a precursor to a substrate.

Claim 7: Figures 15 and 17 of Takekuma depict two process blocks (100, 300) of identical dimension. Further, it has been held that the configuration of the claimed element is a matter of choice which a person of ordinary skill would have found obvious (*In re Dailey*, 149 USPQ 47). It would have been obvious to one of ordinary skill to configure two process blocks disposed within the same modular tool to have identical heights, lengths, and widths.

Claim 11: Any portion of the carrier block which is contiguous to a process block can be considered a positioning member.

Claims 14, 19: As the rejection of claim 1 articulates, the transfer and process blocks are detachably connected, which inherently implies the existence of sites of connection/disconnection.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma in view of Kirkpatrick and Olbrich and in further view of Masayki et al., JP 10-012528, wherein machine translation was used.

Art Unit: 1712

It has been held that rearranging the parts of an invention involves only routine skill in the art (*In re Japikse*, 86 USPQ 70). Nevertheless, Figure 1 of Masayki delineates the claimed arrangement, thereby demonstrating the suitability of the arrangement. It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the interface of Takekuma as taught by Figure 1 of Masayki to achieve the predictable result of substrate processing.

Claims 9-10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma in view of Kirkpatrick and Olbrich and in further view of Cakmakci, US 4,836,968.

Takekuma does not teach the hinged attachment between chambers. Cakmakci articulates the general principle of attaching two chambers with a hinge to enable rotation about an axis, thereby demonstrating the equivalence of hinged attachments for the purpose connecting two discrete structures. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to secure the attachment of Takekuma's chamber portions and blocks through the use of a hinge.

Claims 12, 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma in view of Kirkpatrick and Olbrich and in further view of Slocum et al., US 5,733,024.

Takekuma is silent regarding the presence of guide and positioning members. Slocum discloses a modular system wherein each process block is secured within a fixed reference frame via alignment elements (16), positioning elements (90), and attachment elements (89) (2, 43ff; Fig. 12). Any of these elements are capable of functioning as either a "connection end," "guide member," or a "positioning member." It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate guide and positioning members within the apparatus of Takekuma to configure the processing blocks as dimensionally stable and within a fixed reference frame (1, 43-48, 6, 10-30).

Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma in view of Kirkpatrick and Olbrich and in further view of Takahashi et al., US 5,364,219.

With reference to Figure 1, Kirkpatrick illustrates the affixment between a modular processing chamber (11) and a linear transfer chamber (31). To facilitate the engagement, wheels (24) are attached to the underside of the module (4, 1-8). Kirkpatrick does not, however, employ a "guide rail" to further direct wheels during attachment. In supplementation, Takahashi discloses a modular process chamber (28) which connects with various other process

Art Unit: 1712

chambers (34) (Fig. 5). To guide the attachment, the wheels of the module traverse a set of guide rails (32) extending underneath (4, 3-35; Fig. 4). It would have been obvious to outfit Kirkpatrick's system with guide rails so as to promote the accurate positioning of the process module during its affixment to the transfer chamber.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan K. Ford whose telephone number is 571 270 1880. The examiner can normally be reached on M-F, 8:30-5:00 EDT. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland, can be reached at 571 272 1418. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

/N. K. F./

Examiner, Art Unit 1712

/Karla Moore/

Primary Examiner, Art Unit 1716